Mr. Richard Carpenter
AlliedSignal, Inc.
3520 Westmoor Street
South Bend, IN 46628

Re: Significant Source Modification No:
141-10759-00172

Dear Mr. Carpenter:

AlliedSignal, Inc., applied for a Part 70 operating permit (T-141-7442-00005) on December 10, 1996, for an aircraft landing system manufacturing operation. An application to modify the source was received on March 16, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

(a) One (1) CVD unit (ID No. CVD-21) with an estimated batch capacity of 8800 pounds (initial weight) of brakes for random fiber process or 5300 (initial weight) of brakes for non-woven process and with a nominal total reactant gas flow of 2000 scf per soak hour for random fiber process or a nominal total reactant gas flow of 4200 scf per soak hour for non-woven fiber process; and

(b) One (1) enclosed flare to control VOC emissions from CVD-21 with a rated capacity of 5.5 million British thermal units per hour, piloted by natural gas, and exhausting through stack S-FL-21.

The proposed Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for extension (2-8325), or dial (317) 232-8325.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
JKJ

cc: File - St. Joseph County
U.S. EPA, Region V
St. Joseph County Health Department
Northern Regional Office
Air Compliance Section Inspector - Paul Karkiewicz
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 SIGNIFICANT SOURCE MODIFICATION
OFFICE OF AIR MANAGEMENT

AlliedSignal, Inc.
3520 Westmoor Street
South Bend, Indiana 46628-1373

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: 141-10759-00172	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

TABLE OF CONTENTS

SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates an aircraft landing system manufacturing operation.

Responsible Official:	Carl Montalbine
Source Address:	3520 Westmoor Street, South Bend, Indiana 46628-1373
Mailing Address:	3520 Westmoor Street, South Bend, Indiana 46628-1373
SIC Code:	3728
County Location:	St. Joseph
County Status:	Non-attainment for particulate matter (PM), Attainment for all other criteria pollutants
Source Status:	Part 70 Permit Program

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following new emission units and pollution control devices:

(a) One (1) CVD unit (ID No. CVD-21) with an estimated batch capacity of 8800 pounds (initial weight) of brakes for random fiber process or 5300 (initial weight) of brakes for non-woven process and with a nominal total reactant gas flow of 2000 scf per soak hour for random fiber process or a nominal total reactant gas flow of 4200 scf per soak hour for non-woven fiber process; and

(b) One (1) enclosed flare to control VOC emissions from CVD-21 with a rated capacity of 5.5 million British thermal units per hour, piloted by natural gas, and exhausting through stack S-FL-21.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Permit No Defense [IC 13]

This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions [326 IAC 2-7-1]

Terms in this approval shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in IC 13-11, 326 IAC 1-2 and 326 IAC 2-7 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

B.4 Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.5 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section.

(1) If the affidavit of construction verifies that the emission units were constructed as proposed in the application, then the emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM.

(2) If the affidavit of construction verifies that actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(c) Upon receipt of an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section, the permittee shall attach it to this document.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this approval or required by an applicable requirement, any application form, report, or compliance certification submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, on the attached Certification Form, with each submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this approval, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this approval, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. IDEM, OAM, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) 326 IAC 2-7-11 or 326 IAC 2-7-12 govern whenever the Permittee seeks to amend or modify this approval.

(b) Any application requesting an amendment or modification of this approval shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this approval:

(a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

C.5 Emission Statement [326 IAC 2-6]

(a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual emission statement shall meet the following requirements:

(1) Indicate actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting);

(2) Indicate actual emissions of other regulated pollutants (as that term is defined at 326 IAC 2-7-1(32)) from the source, for purposes of Part 70 fee assessment.

(b) The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30. The annual emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(c) The annual emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

C.6 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation, as described in Section D of this permit.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.8 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

All monitoring and record keeping requirements contained in this permit and not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.9 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] [326 IAC 1-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. The compliance monitoring plan can be either an entirely new document, consist of information contained in other documents, or consist of a combination of new information and information contained in other documents. If the compliance monitoring plan incorporates by reference information contained in other documents, the Permittee shall identify as part of the compliance monitoring plan the document in which the information is found. The elements of the compliance monitoring plan are:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this approval;

(3) The Compliance Monitoring Requirements in Section D of this approval;

(4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this approval; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this approval. CRP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this approval by the Permittee and maintained on site, and is comprised of :

(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this approval; and

(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this approval, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the approval unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the approval conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the approval, and such request has not been denied or;

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

C.10 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this approval exceed the level specified in any condition of this approval, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the corrective actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline.

(c) IDEM, OAM reserves the authority to take any actions allowed under law to resolve noncompliant stack tests.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.11 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]

(a) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, as required by Section D Compliance Monitoring and Record Keeping requirements, reasons for this must be recorded.

(b) At its discretion, IDEM may excuse such failures providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(c) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.12 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where specified in Section D:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where specified in Section D:

(1) Copies of all reports required by this approval;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance.

(d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance.

C.13 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this approval shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this approval, any notice, report, or other submission required by this approval shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

(c) Unless otherwise specified in this approval, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] - The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.

(a) One (1) CVD unit (ID No. CVD-21) with an estimated batch capacity of 8800 pounds (initial weight) of brakes for random fiber process or 5300 (initial weight) of brakes for non-woven process and with a nominal total reactant gas flow of 2000 scf per soak hour for random fiber process or a nominal total reactant gas flow of 4200 scf per soak hour for non-woven fiber process; and

(b) One (1) enclosed flare to control VOC emissions from CVD-21 with a rated capacity of 5.5 million British thermal units per hour, piloted by natural gas, and exhausting through stack S-FL-21.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 BACT Condition [326 IAC 8-1-6]

An enclosed flare has been accepted as BACT for control of the VOC emissions from the CVD-21 unit. All exhaust process gas from the soak phase of the CVD unit's cycle shall be directed through the enclosed flare for VOC control. The enclosed flare shall operate at all times that the CVD unit is operating in the soak phase and shall achieve an overall destruction efficiency of 98% with a maximum VOC emission rate of 0.26 pounds of VOC per million British thermal units (MMBtu) of process gas combusted by the flare. This limitation is equivalent to 2.26 tons of VOC emitted per year from CVD-21 based on the average heat content of the process gas being 713 Btu per cubic foot and the maximum reactant gas inputs for each unit. This limitation, combined with the VOC emission limitations for the other CVD units at the source (CP-141-9999-00172 as modified by 141-11205) is equivalent to 39.9 tons of VOC emitted per year from all of the CVD units Nos. 1 through 21.

D.1.2 Prevention of Significant Deterioration (PSD) Minor Limit [326 IAC 2-2][40 CFR 52.21]

The carbon monoxide emissions from the CVD-21 enclosed flare shall be limited to 2.41 pounds per hour. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for the control device for this facility.

Compliance Determination Requirements

D.1.4 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

Compliance stack tests shall be performed on the CVD-21 unit to confirm the minimum flare operating temperature required to demonstrate compliance with the carbon monoxide (CO) emission rate limit specified in Condition D.1.2 and verify that nitrogen oxides (NOx) emissions from the CVD units do not exceed Prevention of Significant Deterioration (PSD) significant thresholds. These stack tests shall be conducted within 60 days after the unit reaches maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed using a test protocol determined in conjunction with the IDEM OAM Compliance Data Section.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.5 Monitoring

(a) To monitor the volatile organic compound (VOC) load to the control flare, the permittee shall measure the input rate of total reactant gas to the CVD unit once per day over the entire batch cycle and the number and type of brake disks in each batch.

(b) The enclosed flare shall have a flame present and maintain a minimum operating temperature of 1000 degrees Celsius (^{o}C) at all times that the CVD unit is operating in the soak phase. A thermocouple or equivalent device shall be installed and operated to monitor the presence of a pilot flame and to sound an alarm when the flame is not detected. A continuous monitoring system shall be installed and operated to monitor and record the operating temperature of the flare. This system shall be accurate to ±5.0 percent and capture temperature data at least once every fifteen (15) minutes. If the operating temperature of the flare drops below the minimum operating temperature, the Permittee shall take and document response steps to return the operating temperature to the required minimum level. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit. In the event that a breakdown of the monitoring equipment occurs, the Permittee shall supplement monitoring with visual checks once per hour to ensure that a flame is present.

(c) The Permittee shall include in its PMP a maintenance program to inspect regularly the thermocouple or equivalent device for monitoring and recording the presence of a pilot flame, to conduct routine maintenance and calibration on such monitors.

(d) Pursuant to 326 IAC 3-5-1(d)(1), the Permittee shall install, calibrate, certify, operate and maintain a continuous monitoring system for CO on the CVD-21 flare stack designated as S-FL-21 in accordance with 326 IAC 3-5-2 and 3-5-3.

(1) The continuous emission monitoring system (CEMS) shall measure CO emissions rates in pounds per hour and parts per million (ppmvd).

(2) The CEMS shall be in operation at all times when the CVD-21 unit is operating in the soak phase.

(3) The Permittee shall submit to IDEM, OAM, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.6 Record Keeping Requirements

(a) To document compliance with Condition D.1.1, the Permittee shall maintain a daily record of the total reactant gas input rate to the CVD and a log of the number and type of brake discs for each batch run.

(b) To document compliance with Condition D.1.5(b), the Permittee shall maintain flare temperature data and records of response steps taken as a result of operating temperature readings below the minimum operating temperature.

(c) To document compliance with Condition D.1.5(c), the Permittee shall record the output of the CEMS and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.7 Reporting Requirements

The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with condition C.11 - General Reporting Requirements of this permit.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION

PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name: AlliedSignal, Inc.
Source Address: 3520 Westmoor Street, South Bend, Indiana 46628
Mailing Address: 3520 Westmoor Street, South Bend, Indiana 46628
Source Modification No.: 141-10759-00172

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

9 Test Result (specify) _____

9 Report (specify) _____

9 Notification (specify) _____

9 Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for a Part 70 Significant Source Modification.

Source Background and Description

Source Name:	**AlliedSignal, Inc.**
Source Location:	**3520 Westmoor Street, South Bend, Indiana 46628**
County:	**St. Joseph**
SIC Code:	**3728**
Operation Permit No.:	**T 141-7442-00172**
Operation Permit Issuance Date:	**(review pending)**
Significant Source Modification No.:	**141-10759-00172**
Permit Reviewer:	**Janusz Johnson**

The Office of Air Management (OAM) has reviewed a source modification application received on March 16, 1999, from AlliedSignal, Inc., relating to the construction of the following new emission units and pollution control devices:

(a) One (1) CVD unit (ID No. CVD-21) with an estimated batch capacity of 8800 pounds (initial weight) of brakes for random fiber process or 5300 (initial weight) of brakes for non-woven process and with a nominal total reactant gas flow of 2000 scf per soak hour for random fiber process or a nominal total reactant gas flow of 4200 scf per soak hour for non-woven fiber process; and

(b) One (1) enclosed flare to control VOC emissions from CVD-21 with a rated capacity of 5.5 million British thermal units per hour, piloted by natural gas, and exhausting through stack S-FL-21.

History

The Office of Air Management (OAM) issued a Construction Permit (CP 141-9999-00172) to AlliedSignal, Inc., on December 14, 1998. This permit covered the construction and operation of twenty (20) internal flares to control volatile organic compounds (VOC) from the twenty (20) Carbon Vapor Deposition (CVD) units associated with the existing aircraft wheel and brake manufacturing operation. The flares were installed as an alternative to the turbine control system permitted under CP-141-8761 (issued July 2, 1998). Additionally, the permit approved the modification of one of the smaller CVD units (CVD-2) to increase its capacity. For the purposes of review of the new facilities under Prevention of Significant Deterioration requirements (326 IAC 2-2), six (6) CVD units (CVD-15 through CVD-20) originally permitted under CP-141-8761 were also included.

Review under the Prevention of Significant Deterioration (PSD) rules will include the new CVD-21 unit and flare in addition to the flares, CVD-2 expansion, and CVD's 15 through 20 reviewed under the previous permit.

Enforcement Issue

The source has the following enforcement actions pending:

(1) IDEM is aware that some of the emission units at the source may have been constructed and operated prior to receipt of a construction and operation permit. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules for the new facilities only.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (scfm)	Temperature (^{0}F)
S-FL-21	CVD-21 internal flare	40	3.2	2890	1800

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 16, 1999. Additional information was received on May 28, June 29 and August 3, 1999.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (1 pages).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year) *
PM	0.0
PM-10	0.0
SO_2	0.0
VOC	59.7
CO	0.0
NO_x	0.0

HAP's	Potential To Emit (tons/year) *
benzene	6.1
toluene	0.6
styrene	0.6
TOTAL	7.3

* PTE before controls for the new CVD (No. 21) is based on 5800 maximum hours of operation in the soak phase for the non-woven process and the assumption that stack test results taken during the third quarter of the soak phase are a conservative estimate of the emission rate over the entire soak phase.

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4)(D) because the potential to emit volatile organic compounds (VOC) is equal to or greater than twenty-five (25) tons per year.

County Attainment Status

The source is located in St. Joseph County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	maintenance attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_X) are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. St. Joseph County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) St. Joseph County has been classified as attainment or unclassifiable for PM10, SO_2, and CO. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Pollutant	Emissions (ton/yr)
PM	0.8
PM10	0.0
SO_2	0.0
VOC	678.0
CO	0.0
NO_x	0.0

These emissions are estimated actual emissions based on the AIRS Facility Quick Look Report, dated July 24, 1997.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

The PTE of the proposed permit modification is based on the new CVD-21 unit and the following emission units permitted as new units under CP 141-9999-00172 which was modified under 141-11205-00172: chemical vapor deposition units CVD-2 and CVD-15 through 20, and the flare controls for all existing CVD units CVD-1 through CVD-20.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Existing units considered part of PSD modification	0.0	0.0	0.0	7.5	91.2	16	1.8
CVD-21	0.0	0.0	0.0	1.2	7.0	1.1	0.1
Total Project PTE	0.0	0.0	0.0	8.7	98.2	17.1	1.9
PSD Significant Threshold	25	15	40	40	100	40	N.A.

(a) This modification is not major under PSD because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

(b) The carbon monoxide emission rate from the new CVD-21 flare is limited to 2.41 pounds per hour based on maximum soak phase operation of 5800 hours per year for the non-woven process. This limit is equivalent to 7.0 tons of CO emissions per year.

(c) The carbon monoxide emission rates of the flares for CVD units 1 through 20 are limited as follows based on CP-141-9999-00172 as modified by 141-11205:

(1) CVD units 1, 2, 3, 7, 8, 9, and 11 are limited to operating the random fiber process only. Based on maximum soak phase operation of 7200 hours per year, this limit is equivalent to 0.2 tons of CO per year for all the units combined.

(2) CVD units 4, 5, 6, 10, 12, 13, 14, 15, 16, 17, 18, 19, and 20 are limited to 2.41 pounds per hour, each, based on maximum soak phase operation of 5800 hours per year for the non-woven process. This limit is equivalent to 91.0 tons of CO emissions per year for all the units combined.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T-141-7442-00005) application on December 10, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Federal Rule Applicability

There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than ten (10) tons per year of VOC and it is located in St. Joseph County. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by April 15 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4.

326 IAC 5-1-2 (Visible Emissions Limitations)

This source, which is located in St. Joseph County north of Kern Road and east of Pine Road, is subject to 326 IAC 5-1-2 (Visible Emission Limitations) which limits visible emissions from a source or facility. Pursuant to 326 IAC 5-1-2, except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall meet the following, unless otherwise stated in this permit:

(a) Visible emissions shall not exceed an average of thirty percent (30%) opacity in twenty-four (24) consecutive readings, as determined in 326 IAC 5-1-4.

(b) Visible emissions shall not exceed sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-1-3 (Construction and Operating Permit Requirements)

Prior to issuance of this permit, compliance stack tests shall be performed for outlet CO emissions from representative CVD units with 5.5 MMBtu per hour internal flares which control emissions while running a non-woven batch cycle. This testing is required under CP-141-9999-00172 and will be used to confirm the ability of the source to comply with the CO emission limitation established for the CVD-21unit in this permit. These tests shall be performed according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

326 IAC 2-4.1-1 (New Source Toxics Control)

Each CVD unit is independently distinguishable from the other units as a “process or production unit” as defined in 40 CFR 63.41 (incorporated by reference in 326 IAC 2-4.1). The potential to emit (PTE) of combined hazardous air pollutants (HAPs) for CVD-21 is less than 25 tons per year and the potential to emit (PTE) of a single HAP for CVD-21 is less than 10 tons per year (see Appendix A of the TSD for detailed calculations). Therefore, the requirements of this rule do not apply.

326 IAC 6-1-2 (Nonattainment Area Particulate Limitations)

This source is not subject to the provisions of 326 IAC 6-1-2 because although the source is located in St. Joseph County, it does not have specific emission limits listed in 326 IAC 6-1-18, and it does not have the potential to emit 100 tons or more of PM per year or have actual emissions of 10 tons or more of PM per year.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)

This rule is applicable to CVD-21 because this unit will be constructed after January 1, 1980, and has the potential uncontrolled emissions greater than 25 tons per year.

Internal flaring has been accepted as BACT for control of the VOC emissions from the CVD-21 unit. All exhaust process gas from the CVD shall be directed to and combusted by the unit's internal flare and the flare shall achieve an overall destruction efficiency of at least 98% volatile organic compounds.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The CVD unit and flare control have applicable compliance monitoring conditions as specified below:

(a) To monitor the volatile organic compound (VOC) load to the control flare, the permittee shall measure the input rate of total reactant gas to the CVD unit once per day over the entire batch cycle and the number and type of brake disks in each batch.

(b) The enclosed flare shall have a flame present at all times that the CVD unit is in operation. A thermocouple or equivalent device shall be installed and operated to monitor the presence of a pilot flame and to sound an alarm when the flame is not detected. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit. In the event that a breakdown of the monitoring equipment occurs, the Permittee shall supplement monitoring with visual checks once per hour to ensure that a flame is present.

(c) The Permittee shall include in its PMP a maintenance program to inspect regularly the thermocouple or equivalent device for monitoring and recording the presence of a pilot flame, and to conduct routine maintenance and calibration on such monitors.

Conclusion

The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 141-10759-00172.

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for a Part 70 Significant Source Modification

Source Name:	AlliedSignal, Inc.
Source Location:	3520 Westmoor Street, South Bend, Indiana 46628-1373
County:	St. Joseph
Source Modification No.:	141-10759-00172
SIC Code:	3728
Permit Reviewer:	Janusz Johnson

On August 21, 1999, the Office of Air Management (OAM) had a notice published in the *South Bend Tribune*, South Bend, Indiana, stating that AlliedSignal, Inc., had applied for a Part 70 Significant Source Modification to construct and operate one (1) new Carbon Vapor Deposition (CVD) unit and internal flare control associated with the existing aircraft wheel and brake manufacturing operation. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On September 15, 1999, AlliedSignal, Inc., submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows (changes are bolded for emphasis):

Comment 1: Clarify the language of the last sentence of Condition B.2 by replacing "any applicable definitions" with "the applicable definitions."

Response 1: Condition B.2 (Definitions) on Page 4 of the permit has been revised as follows:

B.2 Definitions [326 IAC 2-7-1]
Terms in this approval shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, ~~any~~ **the** applicable definitions found in IC 13-11, 326 IAC 1-2 and 326 IAC 2-7 shall prevail.

Comment 2: Revise Condition B.5 to clarify what is required when construction is completed as proposed in the application as opposed to when construction differs from what was proposed in the application. Additionally, clarify the Permittee's obligation to attach the Operation Permit Validation letter to the permit.

Response 2: The following changes have been made to Condition B.5 (Significant Source Modification) on Page 4 of the permit:

B.5 Significant Source Modification [326 IAC 2-7-10.5(h)]
This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section.~~,~~ **(1) If the affidavit of construction** ~~verifying~~ **verifies** that the emission units were constructed as proposed in the application~~,~~**.** **then** the emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM ~~if constructed as proposed~~.

~~(b)~~**(2)** If **the affidavit of construction verifies that** actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

~~(c)~~**(b)** If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

~~(d)~~**(c)** ~~The Permittee shall receive~~ **Upon receipt of** an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section**,** ~~and~~ **the permittee shall** attach it to this document.

Comment 3: Clarify the language of Condition C.1(a) as follows:

C.1(a) Where specifically designated by this approval or required by an applicable requirement, any ~~application form~~, report, **prepared as required by and** ~~or compliance certification~~ submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Response 3: The language of Condition C.1, Item (a), directly reflects the intent and wording of 326 IAC 2-7-4(f) which states, “Any application form, report, or compliance certification submitted under this rule shall contain certification by a responsible official of truth, accuracy, and completeness.” No change has been made as a result of this comment.

Comment 4: Revise Item (a) of Condition C.3 as follows:

C.3(a) ~~The Permittee must comply with the requirements of~~ 326 IAC 2-7-11 or 326 IAC 2-7-12 **govern** whenever the Permittee seeks to amend or modify this approval.

Response 4: Item (a) of Condition C.3 (Permit Amendment or Modification) on Page 5 of the permit has been revised as suggested.

Comment 5: Clarify that operation of the control equipment under Condition C.6 is dependant on the requirements specified in Section D of the permit.

Response 5: Condition C.6 (Operation of Equipment) on Page 7 of the permit has been modified as follows to be consistent with Section D requirements:

C.6 Operation of Equipment [326 IAC 2-7-6(6)]
Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation**, as described in Section D of this permit**.

Comment 6: In Condition C.7 of the Draft Source Modification, it should be clear that no testing of the new CVD and flare are required by this Source Modification. Such limitations on testing are discussed in the Technical Support Document, but are not expressly stated in the draft Source Modification. The final permit should state explicitly that no testing is triggered by the issuance of this Source Modification.

Response 6: Condition C.7 states, "Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval." The provisions of this condition are clearly intended to apply only if specific stack testing is required in Section D of the permit. The draft permit did not contain a requirement to stack test in Section D (Condition D.1.4); however, based on comments made by the USEPA stack testing requirements have been added to Condition D.1.4 to ensure compliance with the PSD rules. A discussion of the need for this change is detailed in USEPA's comments (Nos. 1 and 2). The authority of IDEM, OAM, to require stack testing is specifically discussed in the response to Comment 12 from AlliedSignal.

Comment 7: Change the language of the first paragraph of Condition C.8 as follows:

~~Compliance with applicable requirements shall be documented as required by this approval.~~ All monitoring and record keeping requirements **set forth in Section D and** not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Response 7: The first paragraph of Condition C.8 (Compliance Monitoring) on Page 7 of the permit shall be revised as follows to avoid redundancy in the permit and clarify the intent of the condition:

C.8 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]
~~Compliance with applicable requirements shall be documented as required by this approval.~~ All monitoring and record keeping requirements **contained in this permit and** not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Comment 8: Condition C.9 should be revised as follows to reflect practical and reasonable requirements on the Permittee. The draft language is not specifically authorized by rule or regulation and imposes burdensome, ambiguous obligations on the Permittee.

C.9 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] [326 IAC 1-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. The compliance monitoring plan can be either an entirely new document, consist of information contained in other documents, or consist of a combination of new information and information contained in other documents. If the

compliance monitoring plan incorporates by reference information contained in other documents, the Permittee shall identify as part of the compliance monitoring plan the document in which the information is found. The elements of the compliance monitoring plan are:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this approval;

(3) The Compliance Monitoring Requirements in Section D of this approval;

(4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this approval; and

~~(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this approval. CRP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this approval by the Permittee and maintained on site, and is comprised of :~~

~~(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this approval; and~~

~~(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.~~

~~(b) For each compliance monitoring condition of this approval, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the approval unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.~~

(c) **Upon observing compliance monitoring data inconsistent with the standard compliance monitoring requirements in Section D,** ~~After investigating the reason for the excursion, the Permittee is excused from taking~~ **no** further ~~response~~ steps **by the Permittee are triggered** for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. ~~This shall be an excuse from taking further~~ **(Note: reasonable** response steps ~~providing that prompt action was taken~~ to correct the monitoring equipment **are required)**.

(2) The Permittee has determined that the compliance monitoring parameters established in the approval conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the approval, and such request has not been denied or;

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned **or is returning** to operating within "normal" parameters and no response steps are required.

~~(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.~~

Response 8: IDEM has worked with members of the Clean Air Act Advisory Council's Permit Committee, Indiana Manufacturing Association, Indiana Chamber of Commerce and individual applicants regarding the Preventive Maintenance Plan, the Compliance Monitoring Plan and the Compliance Response Plan. IDEM has clarified the preventive maintenance requirements by working with sources on draft language over the past three years. The plans are fully supported by rules promulgated by the Air Pollution Control Board. The plans are the mechanism each permittee will use to verify continuous compliance with its permit and the applicable rules and will form the basis for each permittee's Annual Compliance Certification. Each permittee's ability to verify continuous compliance with its air pollution control requirements is a central goal of the Title V and FESOP permit programs.

The regulatory authority for and the essential elements of a compliance monitoring plan were clarified in IDEM's Compliance Monitoring Guidance, in May 1996. IDEM originally placed all the preventive maintenance requirements in the permit section titled "Preventive Maintenance Plan." The Preventive Maintenance Plan (PMP) had to set out requirements for the inspection and maintenance of equipment both on a routine basis and in response to monitoring. Routine maintenance was a set schedule of inspections and maintenance of the equipment. Response maintenance included inspection and maintenance in response to monitoring that showed that the equipment was not operating in its normal range. This monitoring would indicate that maintenance was required to prevent the exceedance of an emission limit or other permit requirement. The maintenance plan was to set out the "corrective actions" that the permittee would take in the event an inspection indicated an "out of specification situation", and set the time frame for taking the corrective action. In addition, the PMP had to include a schedule for devising additional corrective actions for situations that the source had not predicted in the PMP. All these plans, actions and schedules were part of the Preventive Maintenance Plan, with the purpose of maintaining the equipment to prevent an exceedance of an emission limit or violation of other permit requirements.

After issuing the first draft Title V permits in July of 1997, IDEM received comments from members of the regulated community regarding many of the draft permit terms, including the PMP requirements. One suggestion was to remove the corrective action and related schedule requirements from the PMP requirement and placed them into some other requirement. This suggestion was based, in some part, on the desire that a permittee's maintenance staff handle the routine maintenance of the equipment, and a permittee's environmental compliance and engineering staff handle the compliance monitoring.

IDEM agreed to separate the "corrective actions" and related schedule requirements from the PMP. These requirements were placed into a separate requirement named the Compliance Response Plan (CRP). In response to another comment, IDEM changed the name of the "corrective actions" to "response steps."

The CRP response steps and schedule requirements are examples of documenting procedures developed from good business practices and the prevention of environmental problems. Permittees already have maintenance schedules and trouble shooting guides that specify the steps to take when the equipment is not functioning correctly. The steps may involve some initial checking of the system to locate the exact cause, and other steps to place the system back into proper working order. Using the trouble shooting guide and the permittee's own experience with the equipment, the steps are taken in order and as scheduled until the problem is fixed.

No changes to the condition have been made as a result of this comment.

Comment 9: The following language, Item (c)(4) of Condition C.12, should be stricken from the permit because it is not specifically authorized by rule or regulation and imposes burdensome, ambiguous obligations on the Permittee:

C.12(c)(4) ~~Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this approval, and whether a deviation from an approval condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.~~

Response 9: To simplify the description of the types of information which can be considered supporting information for recordkeeping purposes, Item (c) of Condition C.12 (General Record Keeping Requirements) on Page 10 of the permit shall be revised as follows:

C.12(c) Support information shall include, where specified in Section D:

(1) Copies of all reports required by this approval;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance ~~shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this approval, and whether a deviation from an approval condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks~~.

Comment 10: The following Items (c) and (d) of Condition C.13 should be stricken from the permit because there are no quarterly reports required in Section D of the permit:

C.13 (c) ~~Unless otherwise specified in this approval, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

(d) ~~The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.~~

Response 10: Items (c) and (d) of Condition C.13 (General Reporting Requirements) on Page 11 of the permit will not be removed because a quarterly reporting provision has been added to the permit in response to comments from the United States Environmental Protection Agency (USEPA Comment 1).

Comment 11: Change the description of the control units in Condition D.1.1 from "Internal flaring" to "Enclosed flares."

Response 11: Condition D.1.1 (BACT Condition) on page 12 of the permit shall be revised as follows to more accurately describe the control equipment:

D.1.1 BACT Condition [326 IAC 8-1-6]

~~Internal flaring~~ **An enclosed flare** has been accepted as BACT for control of the VOC emissions from the CVD-21 unit. All exhaust process gas from the soak phase of the CVD unit's cycle shall be directed through the enclosed flare for VOC control. The enclosed flare shall operate at all times that the CVD unit is operating in the soak phase and shall achieve an overall destruction efficiency of 98% with a maximum VOC emission rate of 0.273 pounds of VOC per million British thermal units (MMBtu) of process gas combusted by the flare. This limitation is equivalent to 2 tons of VOC emitted per year from CVD-21 based on the average heat content of the process gas being 762 Btu per cubic foot and the maximum reactant gas inputs for each unit. This limitation, combined with the VOC emission limitations for the other CVD units at the source (CP-141-9999-00172 as modified by 141-11205) is equivalent to 39 tons of VOC emitted per year from all of the CVD units Nos. 1 through 21.

Comment 12: Revise Condition D.1.4 as follows:

The Permittee is not required to test this facility by this permit. ~~However, IDEM reserves the authority to request compliance testing in accordance with 326 IAC 2-1.1-11. If testing is required by IDEM, compliance with the CO limit specified in Condition D.1.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.~~

Response 12: As stated in Condition D.1.4 (Testing Requirements) on Page 12 of the permit, IDEM reserves the authority to request compliance testing in accordance with 326 IAC 2-1.1-11 which states, "The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements." No change has been made as a result of this comment.

Comment 13: Clarify in Condition D.1.5, Item (b), that the flare should have a flame present only when the CVD unit is operating in the soak phase. Also, remove the following Compliance Response Plan language from Item (b):

D.1.5(b) The enclosed flare shall have a flame present at all times that the CVD unit is ~~in operation~~ **operating in the soak phase**. A thermocouple or equivalent device shall be installed and operated to monitor the presence of a pilot flame and to sound an alarm when the flame is not detected. ~~The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.~~ In the event that a breakdown of the monitoring equipment occurs, the Permittee shall supplement monitoring with visual checks once per hour to ensure that a flame is present.

Response 13: Item (b) of Condition D.1.5 (Monitoring) on Page 13 of the permit shall be revised to clarify that operation of the controls shall be required only during the soak phase of the CVD process. The language referring to the Compliance Response Plan and failure to take response steps will not be removed from the condition as it pertains to the requirements of Section C, Condition C.9 (Compliance Monitoring Plan - Failure to Take Response Steps). The issue of the Compliance Response Plan and compliance monitoring requirements have been more specifically addressed in the response to Comment 8, above. The revised Condition D.1.5, Item (b), shall be as follows:

D.1.5(b) The enclosed flare shall have a flame present at all times that the CVD unit is ~~in operation~~ **operating in the soak phase**. A thermocouple or equivalent device shall be installed and operated to monitor the presence of a pilot flame and to sound an alarm when the flame is not detected. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit. In the event that a breakdown of the monitoring equipment occurs, the Permittee shall supplement monitoring with visual checks once per hour to ensure that a flame is present.

Comment 14: With regard to the TSD, it should be noted that the TSD should be made consistent with all the changes to the draft Source Modification, including the compliance monitoring discussion on Page 6 of 6 of the TSD.

Response 14: Any inconsistencies between changes made to the permit as a result of AlliedSignal's comments and the TSD will be covered in this Addendum to the TSD. To maintain a history of the permit process from draft to finalization, the Technical Support Document (TSD) will not be changed because the TSD establishes a basis for the permit determinations and any changes which are made to those determinations as a result of the comments received.

Comment 15: AlliedSignal has reviewed the VOC emission rate calculations in the TSD Appendix A and has recommended parameters for calculating these VOC emissions that are based on recent data. If IDEM agrees with AlliedSignal's calculations regarding VOC emission rates, then the draft Source Modification Condition D.1.1 must be revised to reflect an emission limit of 0.26 lbs/MMBtu and the calculations in the TSD must also be revised accordingly.

Response 15: The following is a step by step determination of the appropriate VOC emission rate limit based on the recent data and parameters recommended by AlliedSignal, Inc.:

1. The maximum annual reactant gas volume input into all the CVD units combined based on the maximum operating hours, reactant gas flow rate, and worst case process type for each CVD unit:

<u>CVD-1:</u>
1 unit * 360 scfh reactant gas * 7200 hr/yr = 2,592,000 scf/yr
<u>CVD-2,3,7,8,9,11:</u>
6 units * 2000 scfh reactant gas * 7200 hr/yr = 86,400,000 scf/yr
<u>CVD-4,5,6,10, & 12-21:</u>
14 units * 4200 scfh reactant gas * 5800 hr/yr = 341,040,000 scf/yr

Total reactant gas volume for all CVD units combined = 430,032,000 scf/yr

2. An estimate of the total potential heat content of the reacted gases delivered to the flares from the CVD units can be calculated as follows assuming that the volume of the reacted gases is equivalent to the volume of reactant gases input to the CVD:

   430,032,000 scf/yr * 713 Btu/cf * 1 MMBtu/10^6 Btu = 306,612.82 MMBtu/yr

3. A VOC emission rate limit in terms of pounds per million British thermal units (lb/MMBtu) which will be equivalent to VOC emissions of 39.9 tons per year can be determined as follows:

   $$\frac{\text{39.9 tons/yr * 2000 lb/ton}}{\text{306,612.82 MMBtu/yr}} = 0.260 \text{ lb/MMBtu}$$

Based on these revised calculations, Condition D.1.1 on Page 12 of the permit shall be changed to reflect the VOC emission rate limitation as follows:

D.1.1 BACT Condition [326 IAC 8-1-6]

An enclosed flare has been accepted as BACT for control of the VOC emissions from the CVD-21 unit. All exhaust process gas from the soak phase of the CVD unit's cycle shall be directed through the enclosed flare for VOC control. The enclosed flare shall operate at all times that the CVD unit is operating in the soak phase and shall achieve an overall destruction efficiency of 98% with a maximum VOC emission rate of ~~0.273~~ **0.26** pounds of VOC per million British thermal units (MMBtu) of process gas combusted by the flare. This limitation is equivalent to ~~2~~ **2.26** tons of VOC emitted per year from CVD-21 based on the average heat content of the process gas being ~~762~~ **713** Btu per cubic foot and the maximum reactant gas inputs for each unit. This limitation, combined with the VOC emission limitations for the other CVD units at the source (CP-141-9999-00172 as modified by 141-11205) is equivalent to ~~39~~ **39.9** tons of VOC emitted per year from all of the CVD units Nos. 1 through 21.

The TSD Appendix A calculations for uncontrolled and controlled emissions are based on the most recent stack testing results and only include estimations of the heat content of the reacted gases loaded to the flare for the purpose of estimating the emissions of nitrogen oxides (NOx). For reasons discussed in the response to comments made by the USEPA (Comment 2), recalculation of the estimated NOx emissions is not necessary because an actual level of emissions will be determined by stack testing.

On October 1, 1999, the United States Environmental Protection Agency (USEPA), Region 5, submitted a letter on the proposed construction permit. The summary of the comments and corresponding responses is as follows (changes are bolded for emphasis):

Comment 1: The USEPA is concerned that, due to the highly variable nature of the CVD process, the source may not be capable of complying with their established limits on a continuous basis. AlliedSignal has suggested an hours of operation and pound per hour (lb/hour) limitation on all their CVD units and flare controls. Stack tests conducted for purposes of compliance may only show the emissions at a specific moment in time, and not be representative of AlliedSignal's continuous compliance of the lb/hour limit in this dynamic process.

According to the June 13, 1989 USEPA memorandum, "Guidance on Limiting Potential to Emit in New Source Permitting" from John S. Seitz of the Office of Air Quality Planning and Standards,

> "If the permitting agency determines that setting operation parameters for control equipment is infeasible in a particular situation, a federally enforceable permit containing short term emission limits (e.g. lbs per hour) would be sufficient to limit potential to emit, provided that such limits reflect the operation of the control equipment, and the permit includes requirements to install, maintain and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit"

USEPA believes, that with the current information available, IDEM should consider the use of a CEM, or, if more official stack testing is conducted to verify the relationship between flare temperature and emissions of CO and NOx, a continuous temperature monitor may be considered for each CVD unit. These monitors may not only assure that this modification is minor for PSD, but their use will generate additional data for any CVD units permitted in the future.

Response 1: The USEPA requires a limit on potential to emit to be practically enforceable. For circumstances where add-on controls operate at a specified efficiency, operating parameters and assumptions which are depended on to determine that the control equipment has a given efficiency should be included so that the operating efficiency condition is enforceable as a practical matter. Because the stack tests on the flares can only demonstrate compliance with the CO emission limit for a specific point in time, a supplemental method of monitoring compliance on a more continuous basis is clearly needed. Stack testing conducted by AlliedSignal to date indicates that increasing flare temperature decreases the level of CO emissions. The IDEM, OAM, believes that monitoring of the flare temperature for each CVD unit would be indicative of ongoing compliance with the short term CO limits established in the permit provided that the minimum operating temperature is maintained.

Considering the current information available, the volatile organic compound (VOC) load from the CVD unit to the flare will vary during the 200 hours of soak phase as the active reaction sites on the brake parts are reduced by carbon deposition. There are many reactions occurring in the CVD process and the kinetics of those reactions will change throughout the process creating different chemical species. Additionally flare temperature will be maintained in periods of low load with the use of supplemental natural gas. Because the actual compounds loaded to the flare will fluctuate over the long batch process, the IDEM, OAM, believes that a continuous emission monitor (CEM) for CO should be installed on the CVD-21 unit flare to establish data which will confirm that compliance over the entire batch cycle can be maintained by monitoring temperature. Review of the continuous emissions data from this CVD unit flare can be

used to assure that this modification is minor for PSD and will generate additional information for any CVD units permitted in the future. The IDEM, OAM, reserves the authority to require additional CEMS for the existing CVD units (CVD-1 through CVD-20) in the Part 70 Operating Permit if such monitoring is determined to be necessary to demonstrate compliance based on the CVD-21 unit data.

Therefore, conditions D.1.5 (Monitoring) and D.1.6 (Record Keeping Requirements) shall be revised to incorporate continuous monitoring of the flare operating temperature and CO emissions, and condition D.1.7 (Reporting Requirements) will be added as follows:

D.1.5 Monitoring

(a) To monitor the volatile organic compound (VOC) load to the control flare, the permittee shall measure the input rate of total reactant gas to the CVD unit once per day over the entire batch cycle and the number and type of brake disks in each batch.

(b) The enclosed flare shall have a flame present **and maintain a minimum operating temperature of 1000 degrees Celsius (^{o}C)** at all times that the CVD unit is operating in the soak phase. A thermocouple or equivalent device shall be installed and operated to monitor the presence of a pilot flame and to sound an alarm when the flame is not detected. **A continuous monitoring system shall be installed and operated to monitor and record the operating temperature of the flare. This system shall be accurate to ±5.0 percent and capture temperature data at least once every fifteen (15) minutes. If the operating temperature of the flare drops below the minimum operating temperature, the Permittee shall take and document response steps to return the operating temperature to the required minimum level.** The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit. In the event that a breakdown of the monitoring equipment occurs, the Permittee shall supplement monitoring with visual checks once per hour to ensure that a flame is present.

(c) The Permittee shall include in its PMP a maintenance program to inspect regularly the thermocouple or equivalent device for monitoring and recording the presence of a pilot flame, to conduct routine maintenance and calibration on such monitors.

(d) Pursuant to 326 IAC 3-5-1(d)(1), the Permittee shall install, calibrate, certify, operate and maintain a continuous monitoring system for CO on the CVD-21 flare stack designated as S-FL-21 in accordance with 326 IAC 3-5-2 and 3-5-3.

(1) The continuous emission monitoring system (CEMS) shall measure CO emissions rates in pounds per hour and parts per million (ppmvd).

(2) The CEMS shall be in operation at all times when the CVD-21 unit is operating in the soak phase.

(3) The Permittee shall submit to IDEM, OAM, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

D.1.6 Record Keeping Requirements

(a) To document compliance with Condition D.1.1, the Permittee shall maintain a daily record of the total reactant gas input rate to the CVD and a log of the number and type of brake discs for each batch run.

(b) To document compliance with Condition D.1.5(b), the Permittee shall maintain flare temperature data and records of response steps taken as a result of operating temperature readings below the minimum operating temperature.

(c) To document compliance with Condition D.1.5(c), the Permittee shall record the output of the CEMS and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

~~(b)~~**(d)** All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.7 Reporting Requirements

The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with condition C.11 - General Reporting Requirements of this permit.

Comment 2: The Indiana Department of Environmental Management (IDEM) has conducted three official stack tests to determine appropriate emission factors for this permit. The first two tests generated emission factors that calculated CO emissions from the CVD flares to be above the significance threshold. The third test was conducted above a flare temperature of 1000 degrees [Celsius], which calculated emissions to slightly below the CO significance threshold. AlliedSignal assumed that this single stack test would be representative of the entire process, as long as the flare temperature is consistently held above 1000 degrees [Celsius] as a federally enforceable condition. While it is questionable that the source can continuously operate above this temperature level, more official stack testing should be conducted to verify the relationship between flare temperature and emissions of CO and NOx.

Response 2: The use of a surrogate monitoring parameter, in this case the flare operating temperature, as a method of demonstrating continuous compliance with a short term emission limit depends heavily on the relationship between the surrogate parameter and the pollutant emitted. AlliedSignal has conducted three recent stack tests on the flare of a large CVD unit operating the non-woven process to determine the level of carbon monoxide (CO) emitted. These tests indicate that the rate of CO emissions decreases with increased flare operating temperature, and one test conducted at the highest temperature, 1000 degrees Celsius, demonstrated compliance with the CO emission limits. While the new CVD-21 unit and flare are similar to the CVD unit and flare tested, initial performance testing is required for any new emission units which rely on controls or operating parameters to demonstrate compliance with BACT or PSD requirements. This initial performance testing ensures that the newly constructed CVD unit and flare were assembled correctly and are capable of operating in a compliant manner. The IDEM, OAM, does allow representative testing of identical units when more than one unit is installed at the same time. An example of representative testing is the testing conducted on 3 of the 20 CVD flares installed under CP-141-9999-00172. In this case, it was determined that the 3 tested flares would be considered representative of the whole given that they were all being installed at the same time and that testing all 20 flares would be overly burdensome to the Permittee. The OAM has not extended this representative testing concept to allow a source to construct multiple units as different projects without initial performance testing being required for each project. The OAM believes that initial performance testing should be conducted on the new CVD-21 unit flare for CO to verify the relationship between the minimum operating temperature of 1000 degrees Celsius and a compliant level of CO emissions.

Emissions of nitrogen oxides (NOx) from the CVD flares have not previously been tested. AP-42 emission factors for flares combusting crude propylene were used to estimate potential NOx emissions in the draft permit. These estimations showed NOx emissions to be below the PSD significant threshold, but are based on the assumption that the emissions from flaring the CVD process gas would be similar to flaring crude propylene. Investigation into how NOx evolves shows that about 95% of all NOx from stationary combustion sources is emitted as nitric oxide (NO), and NO is formed by either or both of two mechanisms, “thermal NOx” or “fuel NOx.” “Fuel NOx” results from the combustion of fuels that contain organic nitrogen, primarily coal or heavy oil, and is probably not a large factor of NOx formation in this case. “Thermal NOx” on the other hand is formed by reactions between nitrogen and oxygen in the air used for combustion and is the most likely the driving mechanism for NOx formation in the CVD flares. The rate of formation of thermal NOx is extremely temperature sensitive and becomes rapid at flame temperatures in the range of 3000 ºF to 3600 ºF (1649 ºC to 1982 ºC). Because it is likely that the temperature of a CVD flare flame is in this range when the measured flare temperature at the stack exhaust has been elevated to 1000 ºC, there is a distinct possibility that the actual NOx emission levels are higher than predicted by the AP-42 emission factors. Based on the information available, stack testing should be performed to confirm that the NOx emissions from the CVD flares is not above PSD significant levels. Establishing an actual NOx emission factor will also provide better information for future permitting determinations on CVD units.

The IDEM, OAM, has determined that changes should be made to Condition D.1.4 (Testing Requirements) to require initial performance testing on the new CVD-21 unit flare for CO and NOx emissions. The revised condition shall be as follows:

D.1.4 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]
~~The Permittee is not required to test this facility by this permit. However, IDEM reserves the authority to request compliance testing in accordance with 326 IAC 2-1.1-11. If testing is required by IDEM, compliance with the CO limit specified in Condition D.1.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.~~ **Compliance stack tests shall be performed on the CVD-21 unit to confirm the minimum flare operating temperature required to demonstrate compliance with the carbon monoxide (CO) emission rate limit specified in Condition D.1.2 and verify that nitrogen oxides (NOx) emissions from the CVD units do not exceed Prevention of Significant Deterioration (PSD) significant thresholds. These stack tests shall be conducted within 60 days after the unit reaches maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed using a test protocol determined in conjunction with the IDEM OAM Compliance Data Section.**

Comment 3: The USEPA also understands that these CVD units may emit a large amount of hazardous air pollutants (HAPs) such as naphthalene and benzene. Periodic stack testing may be needed for HAPs of concern to assure that these units are not subject to section 112(g) of the Clean Air Act.

Response 3: CVD units have the potential to emit a variety of hazardous air pollutants (HAPs) which are formed during the CVD reaction process from cracked natural gas and propane. Variations in the reaction conditions including temperature, residence time, and the raw materials input to the reactor can influence the amount and type of HAPs emitted. Analysis testing results and other information submitted by AlliedSignal indicate that some of the HAPs which are consistently present in measurable quantities are benzene, toluene, styrene, and naphthalene. Limited speciated stack testing of CVD units 9, 15 and 18 was conducted in the official stacks test performed on June 15, 1999, as required pursuant to CP-141-9999-00172. Results of the tests included speciated emission levels of benzene, toluene, and styrene. Naphthalene was not included in the test because the semi-volatile nature of naphthalene has made it difficult to obtain results for the compound in the past. Based on some previous official stack test results, however, naphthalene concentrations are assumed to be less than those of benzene. The results of the most recent speciated testing did not indicate that any of the tested HAPs will be emitted at levels which would constitute a “major source of hazardous air pollutants” as defined in 40 CFR 63.41. The OAM believes, based on the information available at this time, that further testing is not required to demonstrate compliance with 112(g). IDEM, OAM, reserves the authority to request speciated stack testing for HAPs in accordance with 326 IAC 2-1.1-11, 326 IAC 2-7-6(1) and 326 IAC 2-7-6(6) if such testing is determined to be necessary to demonstrate compliance with 112(g) in the future.

Appendix A: Emission Calculations
Evaluation of CVD Uncontrolled and Controlled

Company N AlliedSignal, Inc.
Address Ci 3520 Westmoor Street, South Bend, Indiana 46628
Significant 141-10759-00172
Reviewer: Janusz Johnson
Date: August 3, 1999

A maximum VOC emission rate in pounds per hour was derived from the results of stack testing performed on April 27 through the 29, 1999. The maximum uncontrolled emission rate observed during the soak phase of the non-woven process was 20.7 pounds per hour of VOC. The maximum uncontrolled emission rate observed during the soak phase of the random process was 4.87 pounds per hour VOC. These results have been utilized as the basis of the emissions calculations for the CVD units below.

CVD-21

Uncontrolled Potential To Emit from new CVD-21 (based on non-woven process as worst case):

20.6 lbs VOC/hr x 5800 max hrs soak/year x 1 ton / 2000 lbs = 59.7 tons VOC per year

Controlled Potential To Emit for CVD-21 (including flare combustion emissions):
The internal flare is assumed to provide at least 98% control of the VOC emissions. Actual VOC control efficiencies determined during stack testing of similar units ranged from 98.6% to 99.3% for the non-process and was 99.9% for the random fiber process.

Potential VOC emissions after control are based on 98% destruction of the potential uncontrolled VOCs.

VOC: 59.7 tons VOC per year x (1 - 0.98) 1.2 tons controlled VOC emissions

Potential emissions of NOx from the flare are based on AP-42 emission factors for flares (Section 13.5-4). Potential emiss flare are based on a limit of 2.41 lbs/hr requested by the source which will be confirmed by stack testing.

It is assumed that the process gas has same volume as natural gas fed into CVD, but a lower heat content of

CVD-21 annual volume of process gas = 5800 hours in soak per year x 7000 scfh n ********** CF per yea

NOx: ********** CF per year x 762 Btu/CF x 6.8e-8 lb NOx/Btu x 1 ton/20 1.1 tons NOx per year
CO: 2.41 lbs CO/hr x 5800 max hrs soak / year x 1 ton/2000 lbs = 7.0 tons CO per year

Hazardous Air Pollutant (HAP) Emissions

Test results for a large CVD unit running non-woven process:

HAP	uncontrolled emission ra	PTE before controls * (ton/yr)	PTE after controls (98% (ton/yr)
benzene	2.11	6.12	0.12
toluene	0.225	0.65	0.01
styrene	0.209	0.61	0.01

* lbs HAP/hr x 5800 max hrs soak/year x 1 ton / 2000 lbs = tons HAP/yr

PSD Analysis including some emission units permitted under CP-141-9999 as modified by 141-11205

PSD modification summary:
For the purpose of review under PSD, VOC emissions from CVD unit nos. 15 through 20, CVD unit no. 2, and flare combustion emissi CVD unit nos. 1 through 20 have been included. These emission units were previously permitted under CP-141-9999-00172 and are to be part of the same PSD modification as the new CVD-21 unit and flare. Emissions from the previously permitted units are based o (141-11205-00172) to permit no. CP-141-9999-00172 which revised limitations on the emission units.

Emission units	Potential to emit after controls, as limited (tons per year)					
	PM	PM10	SO2	NOx	VOC	CO
CP-141-9999-00172 as modified by 141-11205: CVD units 2, 15 through CVD unit flares 1 throug	0.0	0.0	0.0	16.0	7.5	91.2
new emission units: CVD unit 21 and flare	0.0	0.0	0.0	1.1	1.2	7.0
TOTAL MODIFICATION	**0.0**	**0.0**	**0.0**	**17.1**	**8.7**	**98.2**